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DATE: Thursday, June 03, 2004

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		<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L2	methylomonas and (carotenoid or carotene or lycopene or zeaxanthin) and methane	21
<input type="checkbox"/>	L1	methylomonas and (carotenoid or carotene or lycopene or zeaxanthin) and methane	7

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Search Results - Record(s) 1 through 20 of 21 returned.

☐ 1. Document ID: US 20040077068 A1

Using default format because multiple data bases are involved.

L2: Entry 1 of 21

File: PGPB

Apr 22, 2004

PGPUB-DOCUMENT-NUMBER: 20040077068

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040077068 A1

TITLE: Carotenoid production from a single carbon substrate

PUBLICATION-DATE: April 22, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Brzostowicz, Patricia C.	West Chester	PA	US	
Cheng, Qiong	Wilmington	DE	US	
Dicosimo, Deana J.	Rockland	DE	US	
Koffas, Mattheos	Williamsville	NY	US	
Miller, Edward S.	Wilmington	DE	US	
Odom, James Martin	Kennett Square	PA	US	
Picataggio, Stephen K.	Wilmington	DE	US	
Rouviere, Pierre E.	Wilmington	DE	US	

US-CL-CURRENT: 435/252.3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 2. Document ID: US 20040072311 A1

L2: Entry 2 of 21

File: PGPB

Apr 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040072311

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040072311 A1

TITLE: Production of cyclic terpenoids

PUBLICATION-DATE: April 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Dicosimo, Deana J.	Rockland	DE	US	
Koffas, Mattheos	Wilmington	DE	US	
Wang, Sigun	Wilmington	DE	US	

US-CL-CURRENT: 435/155; 435/166

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 3. Document ID: US 20040063143 A1

L2: Entry 3 of 21

File: PGPB

Apr 1, 2004

PGPUB-DOCUMENT-NUMBER: 20040063143

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040063143 A1

TITLE: Genes involved in isoprenoid compound production

PUBLICATION-DATE: April 1, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Cheng, Qiong	Wilmington	DE	US	
Koffas, Mattheos	Wilmington	DE	US	
Norton, Kelley C.	Avondale	PA	US	
Odom, James M.	Kennett Square	PA	US	
Picataggio, Stephen K.	Landenberg	PA	US	
Schenzle, Andreas	Zuerich	DE	CH	
Tomb, Jean-Francois	Wilmington	DE	US	
Rouviere, Pierre E.	Wilmington		US	

US-CL-CURRENT: 435/6; 435/193, 435/252.3, 435/320.1, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 4. Document ID: US 20030182687 A1

L2: Entry 4 of 21

File: PGPB

Sep 25, 2003

PGPUB-DOCUMENT-NUMBER: 20030182687

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030182687 A1

TITLE: Functionalization of carotenoid compounds

PUBLICATION-DATE: September 25, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Cheng, Qiong	Wilmington	DE	US	
Norton, Kelley C.	Avondale	PA	US	
Tao, Luan	Claymont	DE	US	

US-CL-CURRENT: 800/282; 435/193, 435/252.3, 435/254.2, 435/320.1, 435/419, 435/6,
435/67, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. De
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☐ 5. Document ID: US 20030175186 A1

L2: Entry 5 of 21

File: PGPB

Sep 18, 2003

PGPUB-DOCUMENT-NUMBER: 20030175186
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030175186 A1

TITLE: Process and apparatus for performing a gas-sparged reaction

PUBLICATION-DATE: September 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Cohen, Jeffrey David	Kennett Square	PA	US	

US-CL-CURRENT: 422/224; 422/225, 422/228, 422/229, 422/231

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. De
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☐ 6. Document ID: US 20030170847 A1

L2: Entry 6 of 21

File: PGPB

Sep 11, 2003

PGPUB-DOCUMENT-NUMBER: 20030170847
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030170847 A1

TITLE: Genes involved in isoprenoid compound production

PUBLICATION-DATE: September 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Bramucci, Michael G.	Folsom	PA	US	
Brzostowicz, Patricia C.	West Chester	PA	US	
Cheng, Qiong	Wilmington	DE	US	
Kostichka, Kristy N.	Wilmington	DE	US	
Rouviere, Pierre E.	Wilmington	DE	US	
Nagarajan, Vasantha	Wilmington	DE	US	

Tao, Luan	Claymont	DE	US
Thomas, Stuart M.	Wilmington	DE	US

US-CL-CURRENT: [435/193](#); [435/320.1](#), [435/419](#), [435/6](#), [435/69.1](#), [800/278](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 7. Document ID: US 20030148319 A1

L2: Entry 7 of 21

File: PGPB

Aug 7, 2003

PGPUB-DOCUMENT-NUMBER: 20030148319
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030148319 A1

TITLE: Genes encoding carotenoid compounds

PUBLICATION-DATE: August 7, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Brzostowicz, Patricia C.	West Chester	PA	US	
Cheng, Qiong	Wilmington	DE	US	
Picataggio, Stephen K.	Landenberg	PA	US	
Rouviere, Pierre E.	Wilmington	DE	US	

US-CL-CURRENT: [435/6](#); [435/193](#), [435/320.1](#), [435/325](#), [435/67](#), [435/69.1](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 8. Document ID: US 20030143660 A1

L2: Entry 8 of 21

File: PGPB

Jul 31, 2003

PGPUB-DOCUMENT-NUMBER: 20030143660
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030143660 A1

TITLE: Method for production of asymmetric carotenoids

PUBLICATION-DATE: July 31, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Cheng, Qiong	Wilmington	DE	US	
Tao, Luan	Claymont	DE	US	

US-CL-CURRENT: [435/67](#); [435/193](#), [435/252.3](#), [435/471](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 9. Document ID: US 20030138909 A1

L2: Entry 9 of 21

File: PGPB

Jul 24, 2003

PGPUB-DOCUMENT-NUMBER: 20030138909

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030138909 A1

TITLE: Methanotrophic carbon metabolism pathway genes and enzymes

PUBLICATION-DATE: July 24, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Koffas, Mattheos	Wilmington	DE	US	
Norton, Kelley C.	Avondale	PA	US	
Odom, James M.	Kennett Square	PA	US	
Ye, Rick W.	Wilmington	DE	US	

US-CL-CURRENT: 435/69.1; 435/189, 435/252.3, 435/320.1, 530/350, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 10. Document ID: US 20030129721 A1

L2: Entry 10 of 21

File: PGPB

Jul 10, 2003

PGPUB-DOCUMENT-NUMBER: 20030129721

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030129721 A1

TITLE: Methanotrophic carbon metabolism pathway genes and enzymes

PUBLICATION-DATE: July 10, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Koffas, Mattheos	Wilmington	DE	US	
Norton, Kelley C.	Avondale	PA	US	
Odom, James M.	Kennett Square	PA	US	
Ye, Rick W.	Wilmington	DE	US	

US-CL-CURRENT: 435/189; 435/252.3, 435/320.1, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 11. Document ID: US 20030100045 A1

L2: Entry 11 of 21

File: PGPB

May 29, 2003

PGPUB-DOCUMENT-NUMBER: 20030100045
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030100045 A1

TITLE: Carotenoid ketolase gene

PUBLICATION-DATE: May 29, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Cheng, Qiong	Wilmington	DE	US	
Tao, Luan	Claymont	DE	US	

US-CL-CURRENT: 435/67; 435/189, 435/252.3, 435/320.1, 435/419, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. De
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☐ 12. Document ID: US 20030003528 A1

L2: Entry 12 of 21

File: PGPB

Jan 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030003528
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030003528 A1

TITLE: Carotenoid production from a single carbon substrate

PUBLICATION-DATE: January 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Brzostowicz, Patricia C.	West Chester	PA	US	
Cheng, Qiong	Wilmington	DE	US	
Dicosimo, Deana	Rockland	DE	US	
Koffas, Mattheos	Wilmington	DE	US	
Miller, Edward S.	Wilmington	DE	US	
Odom, James M.	Kennett Square	PA	US	
Picataggio, Stephen K.	Landenberg	PA	US	
Rouviere, Pierre E.	Wilmington	DE	US	

US-CL-CURRENT: 435/67; 435/252.3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. De
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☐ 13. Document ID: US 20020142408 A1

L2: Entry 13 of 21

File: PGPB

Oct 3, 2002

PGPUB-DOCUMENT-NUMBER: 20020142408
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020142408 A1

TITLE: Production of cyclic terpenoids

PUBLICATION-DATE: October 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
DiCosimo, Deana J.	Rockland	DE	US	
Koffas, Mattheos	Wilmington	DE	US	
Odom, James M.	Kennett Square	PA	US	
Wang, Sigun	Wilmington	DE	US	

US-CL-CURRENT: 435/148; 435/166

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 14. Document ID: US 20020137190 A1

L2: Entry 14 of 21

File: PGPB

Sep 26, 2002

PGPUB-DOCUMENT-NUMBER: 20020137190
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020137190 A1

TITLE: High growth methanotrophic bacterial strain

PUBLICATION-DATE: September 26, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Koffas, Mattheos	Wilmington	DE	US	
Odom, James M.	Kennett Square	PA	US	
Schenzle, Andreas	Zuerich		CH	

US-CL-CURRENT: 435/252.3; 435/190, 435/320.1, 435/69.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 15. Document ID: US 20020110885 A1

L2: Entry 15 of 21

File: PGPB

Aug 15, 2002

PGPUB-DOCUMENT-NUMBER: 20020110885
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020110885 A1

TITLE: Methanotrophic carbon metabolism pathway genes and enzymes

PUBLICATION-DATE: August 15, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Koffas, Mattheos	Wilmington	DE	US	
Norton, Kelley C.	Avondale	PA	US	
Odom, James M.	Kenneth Square	PA	US	
Ye, Rick W.	Hockessin	DE	US	

US-CL-CURRENT: [435/183](#); [435/252.3](#), [435/320.1](#), [435/69.1](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWMC	Draw. De
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☐ 16. Document ID: US 20020102690 A1

L2: Entry 16 of 21

File: PGPB

Aug 1, 2002

PGPUB-DOCUMENT-NUMBER: 20020102690

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020102690 A1

TITLE: Genes involved in isoprenoid compound production

PUBLICATION-DATE: August 1, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Cheng, Qiong	Wilmington	DE	US	
Koffas, Mattheos	Wilmington	DE	US	
Norton, Kelley C.	Avondale	PA	US	
Odom, James M.	Kennett Square	PA	US	
Picataggio, Stephen K.	Landenberg	PA	US	
Schenzle, Andreas	Zuerich	DE	CH	
Tomb, Jean-Francois	Wilmington	DE	US	
Rouviere, Pierre E.	Wilmington		US	

US-CL-CURRENT: [435/193](#); [435/183](#), [435/320.1](#), [435/325](#), [435/69.1](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWMC	Draw. De
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☐ 17. Document ID: US 6689601 B2

L2: Entry 17 of 21

File: USPT

Feb 10, 2004

US-PAT-NO: 6689601

DOCUMENT-IDENTIFIER: US 6689601 B2

TITLE: High growth methanotropic bacterial strain

DATE-ISSUED: February 10, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Koffas; Mattheos	Wilmington	DE		
Odom; James M.	Kennett Square	PA		
Schenzle; Andreas	Zurich			CH

US-CL-CURRENT: 435/247; 435/232, 435/248, 435/250, 435/252.1, 435/71.1, 536/24.1

ABSTRACT:

A high growth methanotrophic bacterial strain capable of growth on a C1 carbon substrate has been isolated and characterized. The strain has the unique ability to utilize both methane and methanol as a sole carbon source and has been demonstrated to possess a functional Embden-Meyerhof carbon flux pathway. The possession of this pathway conveys an energetic advantage to the strain, making it particularly suitable as a production platform for the production of biomass from a C1 carbon source.

14 Claims, 6 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw. De
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☐ 18. Document ID: US 6660507 B2

L2: Entry 18 of 21

File: USPT

Dec 9, 2003

US-PAT-NO: 6660507

DOCUMENT-IDENTIFIER: US 6660507 B2

TITLE: Genes involved in isoprenoid compound production

DATE-ISSUED: December 9, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cheng; Qiong	Wilmington	DE		
Koffas; Mattheos	Wilmington	DE		
Norton; Kelley C.	Avondale	PA		
Odom; James M.	Kennett Square	PA		
Picataggio; Stephen K.	Landenberg	PA		
Schenzle; Andreas	Zurich			CH
Tomb; Jean-Francois	Wilmington	DE		
Rouviere; Pierre E.	Wilmington	DE		

US-CL-CURRENT: 435/166; 435/167, 435/183, 435/252.3, 435/254.2, 435/325, 536/23.2

ABSTRACT:

Genes have been isolated from Methylobacter 16a sp. encoding the isoprenoid biosynthetic pathway. The genes and gene products are the first isolated from a Methylobacter strain that is capable of utilizing single carbon (C1) substrates as energy sources. The genes and gene products of the present invention may be used in a variety of ways for the production of isoprenoid compounds in a variety of organisms.

8 Claims, 5 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw. De
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☐ 19. Document ID: US 6555353 B2

L2: Entry 19 of 21

File: USPT

Apr 29, 2003

US-PAT-NO: 6555353

DOCUMENT-IDENTIFIER: US 6555353 B2

TITLE: Methanotrophic carbon metabolism pathway genes and enzymes

DATE-ISSUED: April 29, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Koffas; Mattheos	Wilmington	DE		
Norton; Kelley C.	Avondale	PA		
Odom; James M.	Kennett Square	PA		
Ye; Rick W.	Hockessin	DE		

US-CL-CURRENT: 435/194; 435/252.3, 435/252.31, 435/252.33, 435/252.34, 435/252.35,
435/254.11, 435/254.2, 435/254.21, 435/254.22, 435/254.23, 435/254.3, 435/320.1,
536/23.2

ABSTRACT:

Genes have been isolated from a Methylobacter sp encoding enzymes in the carbon flux pathway. The genes encode a 2-keto-3-deoxy-6-phosphogluconate (KDPGA) and a fructose biphosphate aldolase (FFBPA), as well as numerous other genes. The genes will be useful in C1 metabolizing microorganisms for the manipulation of the carbon flux pathway.

7 Claims, 1 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw. De
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☐ 20. Document ID: US 5616493 A

L2: Entry 20 of 21

File: USPT

Apr 1, 1997

US-PAT-NO: 5616493

DOCUMENT-IDENTIFIER: US 5616493 A

TITLE: Method for foam bioprocess

DATE-ISSUED: April 1, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cahoon; Richard S.	Freeville	NY	13068	

US-CL-CURRENT: 435/246; 435/261

ABSTRACT:

A biological process includes the step of producing a substantially continuous foam of gas bubbles in a liquid capable of undergoing a biological process utilizing prokaryotic or eukaryotic cells. The cells are introduced into the foam after the foam is produced and maintained in the foam under conditions effective to carry out the process. A reaction product of a biological process utilizing a foam culture medium is recovered by subjecting the foam to a pressure change after maintaining the cells in the foam culture medium under conditions effective to sustain the process. An apparatus for carrying out a biological process includes a foam production chamber having one or more inlets for introducing a gas and components of a culture medium. The chamber is adapted for producing a foam of bubbles of the gas in the culture medium. A plug-flow reactor is positioned to receive foam from the foam production chamber as a continuously flowing plug. The apparatus further includes means for introducing cells into the plug-flow reactor.

21 Claims, 18 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw. De
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
methylomonas and (carotenoid or carotene or lycopene or zeaxanthin) and methane	21

Display Format: [Previous Page](#)[Next Page](#)[Go to Doc#](#)

Hit List

Search Results - Record(s) 21 through 21 of 21 returned.

☐ 21. Document ID: US 20030138909 A1, WO 200220796 A2, AU 200185314 A, US 20020110885 A1, US 6555353 B2, EP 1313845 A2, NO 200300963 A, US 20030129721 A1

Using default format because multiple data bases are involved.

L2: Entry 21 of 21

File: DWPI

Jul 24, 2003

DERWENT-ACC-NO: 2002-362250

DERWENT-WEEK: 200352

COPYRIGHT 2004 DERWENT INFORMATION LTD

TITLE: New polynucleotide encoding a Methylomonas sp. carbon flux enzyme useful for altering carbon flow through methanotrophic bacteria, utilized for production of single cell protein and commercially valuable polysaccharides

INVENTOR: KOFFAS, M; NORTON, K C ; ODOM, J M ; YE, R W

PRIORITY-DATA: 2000US-229906P (September 1, 2000), 2001US-0934901 (August 22, 2001), 2002US-0320924 (December 17, 2002), 2002US-0320874 (December 17, 2002)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 20030138909 A1</u>	July 24, 2003		000	C12N009/02
<u>WO 200220796 A2</u>	March 14, 2002	E	073	C12N015/52
<u>AU 200185314 A</u>	March 22, 2002		000	C12N015/52
<u>US 20020110885 A1</u>	August 15, 2002		000	C12N009/00
<u>US 6555353 B2</u>	April 29, 2003		000	C12N009/12
<u>EP 1313845 A2</u>	May 28, 2003	E	000	C12N009/52
<u>NO 200300963 A</u>	April 28, 2003		000	C12N000/00
<u>US 20030129721 A1</u>	July 10, 2003		000	C12N009/02

INT-CL (IPC): C07 H 21/04; C07 K 14/195; C12 N 0/00; C12 N 1/15; C12 N 1/19; C12 N 1/21; C12 N 5/06; C12 N 9/00; C12 N 9/02; C12 N 9/12; C12 N 9/52; C12 N 15/52; C12 N 15/74; C12 P 21/02

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw. Data
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Terms	Documents
methylomonas and (carotenoid or carotene or lycopene or zeaxanthin) and methane	21

Display Format:

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STN SEARCH

09/941,947

6/3/04

=> file .nash

=> s methylomonas and (carotenoid or carotene or zeaxanthin or astaxanthin or antheraxanthin) and methane

L1 0 FILE MEDLINE
L2 3 FILE CAPLUS
L3 1 FILE SCISEARCH
L4 2 FILE LIFESCI
L5 3 FILE BIOSIS
L6 1 FILE EMBASE

TOTAL FOR ALL FILES

L7 10 METHYLOMONAS AND (CAROTENOID OR CAROTENE OR ZEAXANTHIN OR ASTAXANTHIN OR ANOTHERAXANTHIN) AND METHANE

=> dup rem l7

PROCESSING COMPLETED FOR L7

L8 6 DUP REM L7 (4 DUPLICATES REMOVED)

=> d ibib abs 1-6

L8 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:371066 CAPLUS

DOCUMENT NUMBER: 140:369956

TITLE: Natural promoters from **Methylomonas** genome
for regulated gene expression in C1 metabolizing
bacteria

INVENTOR(S): Dicosimo, Deana J.; Picataggio, Stephen K.; Seip, John
E.; Ye, Rick W.; Wang, Tao; Ni, Hao

PATENT ASSIGNEE(S): E.I. Du Pont de Nemours and Company, USA

SOURCE: PCT Int. Appl., 83 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004037998	A2	20040506	WO 2003-US33698	20031021

) W: CA, JP, NO

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

PRIORITY APPLN. INFO.: US 2002-419872P P 20021021

AB The invention relates to the use of promoter regions isolated from a **Methylomonas** sp. for gene expression and metabolic engineering in C1 metabolizing bacteria. Genes, ntrA, glnB, htpG, moxF and hps, have been identified in the **Methylomonas** genome that are responsive to various metabolic and growth conditions. The identified responsiveness of these genes allows for the use of their promoters in regulated gene expression in transgenic C1 metabolizing bacteria. In particular, the hps promoter, which in its native state drives the expression of 3-hexulose-6-phosphate synthase (HPS), was found to be useful for directing expression of heterologous coding regions (e.g., crtZ) in the obligate methanotroph **Methylomonas** sp. 16a.

L8 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:172119 CAPLUS

DOCUMENT NUMBER: 136:231339

TITLE: **Carotenoid** production from a single carbon
substrate

INVENTOR(S): Brzostowicz, Patricia C.; Cheng, Qiong; Dicosimo,
Deana J.; Koffas, Mattheos; Miller, Edward S.; Odom,
J. Martin; Picataggio, Stephen K.; Rouviere, Pierre E.

PATENT ASSIGNEE(S): E. I. Du Pont de Nemours & Co., USA

SOURCE: PCT Int. Appl., 156 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 4

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002018617	A2	20020307	WO 2001-US27420	20010904
WO 2002018617	A3	20030522		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2002142408	A1	20021003	US 2001-938956	20010824
US 2003003528	A1	20030102	US 2001-941947	20010829
AU 2001088699	A5	20020313	AU 2001-88699	20010904
EP 1328639	A2	20030723	EP 2001-968453	20010904
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
NO 2003000343	A	20030403	NO 2003-343	20030123
US 2004077068	A1	20040422	US 2003-363567	20030904
US 2004063143	A1	20040401	US 2003-700003	20031103
PRIORITY APPLN. INFO.:			US 2000-229858P P	20000901
			US 2000-229907P P	20000901
			US 2001-934903 A3	20010822
			WO 2001-US27420 W	20010904
AB A method for the prodn. of carotenoid compds. is disclosed. The method relies on the use of microorganisms which metabolize single carbon substrates for the prodn. of carotenoid compds. in high yields. Thus Methylomonas strain 16a was genetically enhanced to produce .beta.- carotene and zeaxanthin from methane .				
L8 ANSWER 3 OF 6 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN ACCESSION NUMBER: 93:643546 SCISEARCH THE GENUINE ARTICLE: MC210 TITLE: REVISED TAXONOMY OF THE METHANOTROPHS - DESCRIPTION OF METHYLOBACTER GEN-NOV, EMENDATION OF METHYLOCOCCUS, VALIDATION OF METHYLOSINUS AND METHYLOCYSTIS SPECIES, AND A PROPOSAL THAT THE FAMILY METHYLOCOCCACEAE INCLUDES ONLY THE GROUP-I METHANOTROPHS AUTHOR: BOWMAN J P (Reprint); SLY L I; NICHOLS P D; HAYWARD A C CORPORATE SOURCE: UNIV TENNESSEE, CTR ENVIRONM BIOTECHNOL, 10515 RES DR, SUITE 100, KNOXVILLE, TN, 37932 (Reprint); UNIV QUEENSLAND, DEPT MICROBIOL, CTR BACTERIAL DIVERS & IDENTIFICAT, BRISBANE, QLD 4072, AUSTRALIA; CSIRO, MARINE LABS, DIV OCEANOLOG, HOBART, TAS 7001, AUSTRALIA COUNTRY OF AUTHOR: USA; AUSTRALIA SOURCE: INTERNATIONAL JOURNAL OF SYSTEMATIC BACTERIOLOGY, (OCT 1993) Vol. 43, No. 4, pp. 735-753. ISSN: 0020-7713. DOCUMENT TYPE: Article; Journal FILE SEGMENT: LIFE LANGUAGE: ENGLISH REFERENCE COUNT: 57 *ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS*				
AB Numerical taxonomic, DNA-DNA hybridization, and phospholipid fatty acid composition analyses were performed on an extensive range of methanotrophic strains, including reference strains and environmental isolates obtained from sites throughout eastern Australia. When the results of these studies were related to the results of a study based on genomic physicochemical properties, they clarified group I and II methanotroph genus and species interrelationships. The group I methanotrophs were found to be made up of three broadly phenotypically and genotypically homologous clusters of species. The first group I methanotroph cluster included the carotenoid -containing species Methylomonas methanica , Methylomonas fodinarum , and Methylomonas aurantiaca . These species represent the true members of the genus Methylomonas . The second group I methanotroph cluster was made up of two subclusters of strains. One subcluster included species not capable of producing resting cells and consisted of the				

species '**Methylomonas** agile,' '**Methylomonas** alba,' and **Methylomonas** pelagica. The other subcluster included species capable of forming desiccation-resistant cysts and included **Methylococcus** luteus, marine **Methylomonas**-like strains, and **Methylococcus** whittenburyi. Strains designated '**Methylococcus** ucrainicus' and **Methylococcus** vinelandii were found to be synonyms of **Methylococcus** whittenburyi, while **Methylococcus** bovis was a synonym of **Methylococcus** luteus. It is proposed that these subclusters represent a new genus, **Methylobacter** gen. nov. The species in the new genus are type species **Methylobacter** luteus comb. nov., **Methylobacter** agilis sp. nov., **Methylobacter** albus sp. nov., nom. rev., **Methylobacter** marinus sp. nov., **Methylobacter** pelagicus comb. nov., and **Methylobacter** whittenburyi comb. nov. The remaining group I methanotrophs included the moderately thermophilic species **Methylococcus** capsulatus and **Methylococcus** thermophilus and a group of unnamed strains closely related to **Methylococcus** capsulatus. It is proposed that these species represent the true members of the genus **Methylococcus**. The group II methanotrophs consisted of two closely related groups. The first group included budding, exospore-producing strains, while the second group included nonmotile, cyst-forming strains. These groups represent the genera **Methylosinus** and **Methylocystis**, which are revived here. The genus **Methylosinus** gen. nov., nom. rev. includes the species **Methylosinus** trichosporium sp. nov., nom. rev. and **Methylosinus** sporium sp. nov., nom. rev., while the genus **Methylocystis** gen. nov., nom. rev. includes the species **Methylocystis** parvus sp. nov., nom. rev. and **Methylocystis** echinoides sp. nov., nom. rev.

L8 ANSWER 4 OF 6 LIFESCI COPYRIGHT 2004 CSA on STN DUPLICATE 1
 ACCESSION NUMBER: 90:59699 LIFESCI
 TITLE: **Methylomonas** fodinarum sp. nov. and
Methylomonas aurantiaca sp. nov.: Two closely
 related type I obligate methanotrophs.
 AUTHOR: Bowman, J.P.; Sly, L.I.; Cox, J.M.; Hayward, A.C.
 CORPORATE SOURCE: Dep. Microbiol., Univ. Queensland, Brisbane 4072,
 Australia
 SOURCE: SYST. APPL. MICROBIOL., (1990) vol. 13, no. 3, pp. 279-287.
 DOCUMENT TYPE: Journal
 FILE SEGMENT: J
 LANGUAGE: English
 SUMMARY LANGUAGE: English

AB A numerical analysis of **methane**-utilizing isolates obtained from various locations in the north to northeastern region of Australia resulted in the recognition of two distinct but related taxa. Both species are orange, **carotenoid**-containing, obligate Type I methanotrophs. The first species--**Methylomonas** fodinarum sp. nov. has a mol% G + C of 58.4 plus or minus 0.3% while the second species--**Methylomonas** aurantiaca sp. nov. has a mol% G + C of 56.5 plus or minus 0.4%. They are morphologically similar, polar-flagellated rods, which can be distinguished on biochemical and physiological properties. The DNA homology between the species ranges from 40 to 60%. Their phenotypic and genotypic characters and relationship to other **Methylomonas** species are shown.

L8 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
 ACCESSION NUMBER: 1987:81285 CAPLUS
 DOCUMENT NUMBER: 106:81285
 TITLE: Occurrence of isoprenoid compounds in gram-negative
 methanol-, **methane**-, and
 methylamine-utilizing bacteria
 AUTHOR(S): Urakami, Teizi; Komagata, Kazuo
 CORPORATE SOURCE: Niigata Res. Lab., Mitsubishi Gas Chem. Co., Inc.,
 Niigata, 950-31, Japan
 SOURCE: Journal of General and Applied Microbiology (1986),
 32(4), 317-41
 CODEN: JGAMA9; ISSN: 0022-1260
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The isoprenoid compds. in gram-neg. methanol-, **methane**-, and methylamine-utilizing bacteria were investigated. All strains tested contained ubiquinone, but none contained menaquinone. The ubiquinone types were Q-8, Q-9, or Q-10. The so-called obligate methylotrophs and

methanotrophs (genus *Methylobacillus*, *Methylophaga*, ***Methylomonas***, *Methylococcus*, and *Methylovibrio*) contained ubiquinone Q-8. The *Hyphomicrobium* strains contained Q-9. The other facultative methylotrophs and methylamine-utilizing bacteria contained Q-10. A large amt. of squalene occurred in the *Methylobacillus*, *Methylophaga*, ***Methylomonas***, and *Methylococcus* strains which utilize one-carbon compds. via the ribulose monophosphate pathway. The *Protomonas extorquens* and *Methylobacterium organophilum* strains contained a large amt. of sterols (Hop-22(29)-ene and Hopan-22-ol), **carotenoid** pigments, and a small amt. of squalene. The *Hyphomicrobium* strains contained a small amt. of squalene and Hop-22(29)-ene. The *Xanthobacter* strains contained a large amt. of **carotenoid** pigments (**zeaxanthin**, **zeaxanthin** monorhamnoside, and **zeaxanthin** dirhamnoside). The *Protomonas* and *Methylobacterium* strains were unique in the existence of sterols and large amts. of total isoprenoid compds., 4.68-7.97 mg/g of dry cell. The distribution of squalene, sterols, quinones, and **carotenoid** pigments conforms with the morphol., physiol., and other chemotaxonomic characteristics in gram-neg. methanol-, **methane**-, and methylamine-utilizing bacteria.

L8 ANSWER 6 OF 6 LIFESCI COPYRIGHT 2004 CSA on STN DUPLICATE 3
 ACCESSION NUMBER: 84:72312 LIFESCI
 TITLE: ***Methylomonas*** rubra pigment formation and origin.
 AUTHOR: Grinberg, T.A.
 CORPORATE SOURCE: Inst. Microbiol. and Virol., Acad. Sci. USSR, Kiev, USSR
 SOURCE: MIKROBIOL. ZH., (1984) vol. 46, no. 6, pp. 69-71.
 DOCUMENT TYPE: Journal
 FILE SEGMENT: J
 LANGUAGE: Russian
 SUMMARY LANGUAGE: English; Russian
 AB It is stated that **methane**-oxidating microorganisms characterized by orange-red pigmentation synthesize **carotenoid**-origin pigments. In the sum of pigments extracted from the biomass of these bacteria beta -**carotene** prevails. Formation of **carotenoid** pigments by the microorganisms of concern is studied under periodic and continuous cultivation conditions. A modified procedure accelerating and facilitating pigment extraction from the biomass is given.

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